WHAT IS CLAIMED IS:

1. A method for providing an optical measuring signal to an optical component to be measured, comprising the step of:

broadening the spectral density of the optical signal until relevant non-linear effects in the optical component occur, at most, by combining a plurality of initial optical signals to create the optical signal.

2. The method of claim 1, wherein the initial optical signals have different center wavelengths.

3. The method.of the claims 1, further comprising the steps of:

using between about 4 to 11 initial optical signals.

4. The method of claim 1, further comprising the step of:

adjusting a spacing between the center wavelengths of any two of the initial optical signals to be not equal to each other.

5. The method of claim 1, further comprising the step of:

adjusting the initial optical signals to have approximately the same optical power.

6. The method of claim 1, further comprising the step of:

increasing the power of the optical signal until relevant non-linear effects in the optical component occur, at most, by increasing the power of the initial optical signals until relevant non-linear effects in the optical component occur, at most.

7. The method of claim 1, further comprising the step of:

adjusting the spacing between the center wavelength of the initial optical signal having the smallest center wavelength and the initial optical signal having the biggest center wavelength to be not greater than about 20

nanometer.

8. The method of claim 1, further comprising the steps of:

combining the initial optical signals by coupling them together, the coupling having coupling efficiencies $C > 1/N$, preferably approximately 1, if $P_{tot} = N \times P_{ini} \times C$, P_{tot} being the total output of the combined initial optical signals, P_{ini} being the output of a single initial optical signal, N being the number of the initial optical signals.

9. A software program or product, preferably stored on a data carrier, for executing the method of claim 1, when run on a data processing system such as a computer.

10. A method for performing an optical time domain reflectometer - OTDR - measurement, comprising the steps of:

providing an optical measuring signal to an optical component to be measured by broadening the spectral density of the optical signal until relevant non-linear effects in the optical component occur, at most, by combining a plurality of initial optical signals to create the optical signal, and

detecting a response signal in response to the optical measuring signal provided to an optical component.

11. An apparatus for providing an optical signal to an optical component, comprising:

a broadening device adapted for broadening the spectral density of the optical signal until relevant non-linear effects in the optical component occur, at most, by combining a plurality of initial optical signals to create the optical signal.

12. The apparatus of claim 11, further comprising:

at least two laser sources to provide at least two initial optical signals to

create the optical signal, the initial optical signals having different center wavelengths.

13. The apparatus of claim 11, further comprising:

at least one combiner to combine the initial optical signals to the optical signal.

14. The apparatus of claim 11, further comprising:

a combiner having coupling efficiencies $C > 1/N$, preferably approximately 1, if $P_{tot} = N \times P_{ini} \times C$, P_{tot} being the total output of the combined initial optical signals, P_{ini} being the output of a single initial optical signal, N being the number of the initial optical signals.

15. An optical time domain reflectometer - OTDR -, comprising:

an apparatus, adapted for providing an optical measuring signal to an optical component to be measured, comprising a broadening device adapted for broadening the spectral density of the optical signal until relevant non-linear effects in the optical component occur, at most, by combining a plurality of initial optical signals to create the optical signal, and

a detector adapted for detecting a response signal in response to the optical measuring signal provided to an optical component.